Patent claims:

1. A fluidized-bed reactor for the oxychlorination of ethylene, oxygen and HCl, comprising a heat exchanger, consisting of a plurality of tube packets, in the fluidized bed for releasing the heat evolved owing to the exothermic reaction to a heat-transfer medium in the tube packets, in particular to water/steam, the tube packets coming into contact with water via a ring pipe and the steam being removed via a ring pipe, wherein the ring pipe is mounted as a collector or chamber (9, 10) directly on the reactor wall (4).

2. A process as claimed in claim 1, wherein the distribution or collecting chamber (9, 10) is mounted internally on the reactor wall (4).

3. The process as claimed in claim 1 or 2, wherein the distribution or collecting chamber (9a, 10a) is mounted externally on the reactor wall.

4. The process as claimed in any of the preceding claims, wherein the distribution or collecting chamber (9b, 10b) is mounted both internally and externally on the reactor wall.

5. The process as claimed in any of the preceding claims, wherein the chamber (9, 10) is essentially rectangular in cross-section (Fig. 3, Fig. 5).

6. The process as claimed in any of the preceding

claims, wherein the chamber (9a) is essentially semicircular in cross-section (Fig. 4, Fig. 7).

7. The process as claimed in any of the preceding claims, wherein the chamber (9, 10) is essentially circular in cross-section, one half of the circular shape being coordinated with the interior of the reactor (4) and the other half with the exterior of the reactor (Fig. 6, Fig. 8).

8. The process as claimed in any of the preceding claims, wherein the holes (13) for connecting the pipelines (7, 8) are in the form of throttle holes for defining a desired pressure loss and hence for ensuring uniform flows over the various tube packets.

Sub a1 cont

add a2